WHAT IS CLAIMED IS:

1. A method of power steering hose assembly design and analysis for a power steering system in a vehicle, said method comprising the steps of:

selecting a design for a power steering system from a database stored in a memory of a computer system, wherein the power steering system includes a power steering hose assembly having a noise attenuation device;

generating a mesh model of the power steering hose assembly from the power steering hose assembly design;

selecting a predetermined characteristic of the power steering system for a predetermined operating condition of the vehicle;

performing an acoustic analysis on the mesh model of the power steering hose assembly using the predetermined characteristic;

determining an acoustic response of the power steering hose assembly from the acoustic analysis;

determining a noise transmission loss across the power steering hose assembly using the acoustic response;

determining whether the transmission loss meets a predetermined noise criteria;

modifying a design parameter for the power steering system if the transmission loss does not meet a predetermined noise criteria; and

using a power steering hose assembly design and analysis if the transmission loss does meet a predetermined criteria.

2. A method as set forth in claim 1 wherein said step of selecting a design for a power steering system includes the step of generating a model of the power steering system using computer aided design.

3. A method as set forth in claim 1 wherein said step of selecting a predetermined characteristic of the power steering system includes the step of selecting a property of a power steering fluid for the power steering system at a predetermined operating condition.

4. A method as set forth in claim 1 wherein said step of selecting a predetermined characteristic of the power steering system includes the step of selecting a property of a power steering

pump at a predetermined operating condition.

5. A method as set forth in claim 1 wherein said step of performing an acoustic analysis includes the step of using finite element analysis to perform the acoustic analysis.

6. A method as set forth in claim 1 wherein said step of determining an acoustic response of the power steering hose assembly includes the step of determining an acoustic response at an outlet portion of the power steering hose assembly.

7. A method as set forth in claim 1 wherein said step of determining a noise transmission loss includes determining a difference between the noise level at an inlet portion of the power steering hose assembly and an outlet portion of the power steering hose assembly.

8. A method as set forth in claim 1 wherein said step of determining whether the transmission loss meets a predetermined criteria includes the step of determining whether a peak frequency is minimized.

9. A method as set forth in claim 1 wherein said attenuation device is a tuning cable axially disposed within said power steering hose assembly.

10. A method of power steering hose assembly design and analysis for a power steering system in a vehicle, said method comprising the steps of:

selecting a design for a power steering system from a database stored in a memory of a computer system, wherein the power steering system includes a power steering hose assembly having a noise attenuation device;

generating a mesh model of the power steering hose assembly from the power steering hose assembly design;

selecting a property of a power steering fluid for the power steering system at a predetermined operating condition of the vehicle;

selecting a property of a power steering pump for the power steering system at a predetermined operating condition;

using finite element analysis and the predetermined characteristics of the power steering fluid and power steering pump to acoustically analyze

the mesh model of the power steering hose assembly,

determining an acoustic response at an outlet portion of the power steering hose assembly from the acoustic analysis;

determining a noise transmission loss across the power steering hose assembly by determining a difference between the noise level at an inlet portion of the power steering hose assembly and an outlet portion of the power steering hose assembly;

determining whether the transmission loss meets a predetermined noise criteria;

modifying a design parameter for the power steering system if the transmission loss does not meet a predetermined noise criteria; and

using a power steering hose assembly design and analysis if the transmission loss does meet a predetermined criteria.

11. A method as set forth in claim 10 wherein said step of selecting a design for a power steering system includes the step of generating a model of the power steering system using computer aided design.

12. A method as set forth in claim 10

wherein said step of determining whether the transmission loss meets a predetermined criteria includes the step of determining whether a peak frequency is minimized.

13. A method as set forth in claim 10 wherein said attenuation device is a tuning cable axially disposed within said power steering hose assembly.

14. A method of hydraulic hose assembly design and analysis for a hydraulic energy assistance system, said method comprising the steps of:

selecting a design for a hydraulic energy assistance system from a database stored in a memory of a computer system, wherein the hydraulic energy assistance system includes a pump and a hydraulic hose assembly having a noise attenuation device;

generating a mesh model of the hydraulic hose assembly from the hydraulic hose assembly design;

selecting a predetermined characteristic of the hydraulic energy assistance system for a predetermined operating condition;

performing an acoustic analysis on the mesh model of the hydraulic hose assembly using the predetermined characteristic;

determining an acoustic response of the hydraulic hose assembly from the acoustic analysis;

determining a noise transmission loss across the hydraulic hose assembly using the acoustic response;

determining whether the transmission loss meets a predetermined noise criteria;

modifying a design parameter for the hydraulic energy assistance system if the transmission loss does not meet a predetermined noise criteria; and

using the hydraulic hose assembly design and analysis if the transmission loss does meet a predetermined criteria.

15. A method as set forth in claim 14 wherein said step of performing an acoustic analysis includes the step of using finite element analysis to perform the acoustic analysis.

16. A method as set forth in claim 14 wherein said step of determining an acoustic response of the hydraulic hose assembly includes the step of determining an acoustic response at an outlet portion of the hydraulic hose assembly.

17. A method as set forth in claim 14 wherein said step of determining whether the transmission loss meets a predetermined criteria includes the step of determining whether a peak frequency is minimized.

18. A method as set forth in claim 14 wherein said hydraulic energy assistance system is for a power steering system on a vehicle.

19. A method as set forth in claim 14 wherein said attenuation device is a tuning cable axially disposed within said hydraulic hose assembly.